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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/532,424
Filing Date: April 22, 2005
Appellant(s): FUJII ET AL.

Frederick Handren
For Appellants

EXAMINER'S ANSWER

This is in response to the appeal brief filed 12-9-08 and 2-26-09 appealing from the Office action mailed 6-10-08.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

The after final amendment filed 9-10-08 has not been entered.

The after final amendment filed 10-9-08 has been entered.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

59-025684	Japan 684	06-1981
408833	Soviet Union	07-1974
55-110608	Japan 608	08-1980
5,980,688	Slingluff	11-1999

APPENDIX A of this Examiner's Answer contains a translation of Japan 684.
This translation of Japan 684 was provided by appellants on 9-10-08.

APPENDIX B of this Examiner's Answer contains a translation of Soviet Union.
This translation of Soviet Union was provided by examiner on 7-25-08.

APPENDIX C of this Examiner's Answer contains a translation of Japan 608.
This translation of Japan 608 is being transmitted with this Examiner's Answer.

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

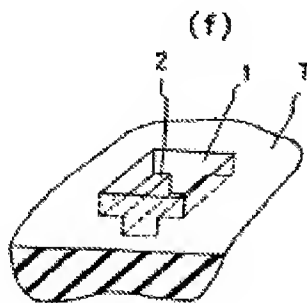
The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 12, 15-18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japan 684 (JP 59-025684, cited by applicant) in view of Soviet

Union (SU 408,833) and optionally further in view of Japan 608 (JP 55-110608) and/or Slingluff (US 5,980,668).

Japan 684, directed to a tire tread wear indicator, discloses a tire having a tread T comprising circumferential grooves and circumferential ribs wherein concave recessed portions 1 are formed in the ribs. Abrasion degree display portion 2 (wear indicating portion 2) includes a concave portion and/or convex portion (projection and/or depression). Abrasion degree display portion 2 (wear indicating portion 2) is provided on at least one side of the recessed portion 1. The wear indicating portion allows one to visually recognize the abrasion progress state (degree or wear) of the tire. See translation of Japan 684 by applicant filed on 9-10-08. The abrasion degree display portion 2 (wear indicating portion 2) is configured to form steps. See Figures 2a-2f. The contour of the abrasion degree display portion 2 (wear indicating portion 2) may comprise straight lines (Figure 2a) or curved lines (Figure 2c). **As can be seen in Figure 2f, the wear indicator may be formed as a "stepped hole" in the tread.** Figure 2f is reproduced below:



The first step of the wear indicating hole of Figure 2f has a *rectangular contour* and is located at the tread surface. The second step of the wear indicating hole of Figure 2f

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has a *rectangular contour* and is *located between the tread surface and the bottom of the hole*. The rectangular contour of the second step of the wear indicating hole is narrower than the rectangular contour of the first step of the wear indicating hole of Figure 2f. Thus, the wear indicating hole in Figure 2f has two steps wherein the first step is on a tread surface side and a second step is located closer to a bottom side than the first step. The first step has a contour of a "wider polygon formed by straight lines" (wide rectangle). The second step has a contour of a "narrower polygon formed by a straight lines" (narrow rectangle). Since the ends of the narrower polygon contact the ends of the wider polygon, the contour of the second step (narrower polygon) of the wear indicating hole in Figure 2f is "included in" the contour of the first step. At page 7 of the translation filed by applicant, Japan 684 states:

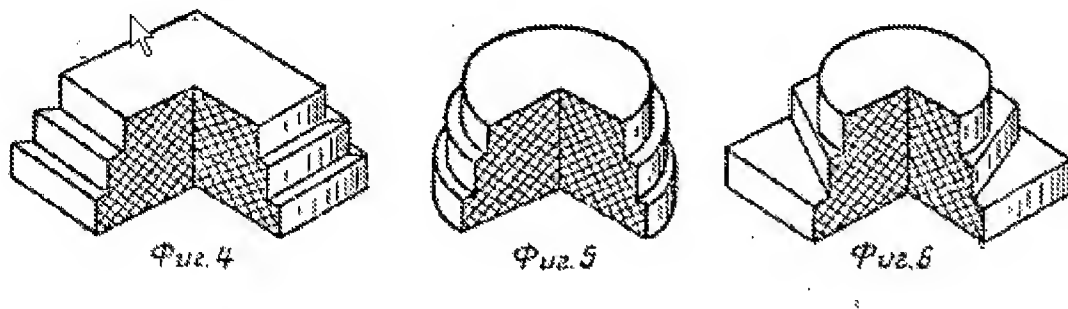
Therefore, an ordinary user who has been unable to easily know the abrasion progress state because the user does not own an abrasion measuring tool can easily and accurately know the abrasion progress state of the tire. As a result, the prediction of the tire position change timing, the adjustment of the utilization conditions (such as the pneumatic pressure) and the like can be appropriately made, and the tire is useful for accident prevention.

Figure 3 illustrates the tread as having three rows wherein each row contains a pair of wear indicating holes. Japan 684 does not recite providing the steps of the wear indicating hole such that one step has a contour including a polygon formed by straight lines and the other step has a different contour including a loop shape formed by a curved lines.

Soviet Union, directed to a tire tread wear indicator, discloses a pneumatic tire having a tread comprising a wear indicator having a stepped shape for permitting tire wear to be assessed. Soviet Union teaches that the shape of the steps of the wear

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indicator can be rectangular (Figure 4) or round (Figure 5). Soviet Union also teaches that the individual steps of the wear indicator can have different shapes. In particular, Soviet Union teaches that the top step can be round, the intermediate step can be rhombic or square and the bottom step can be rectangular (Figure 6). Hence, **Soviet Union teaches a stepped wear indicator wherein the steps have the same contour (figures 4, 5) or different contours comprising a round contour and a polygon contour (figure 6).** See translation of Soviet Union. Figures 4, 5 and 6 of Soviet Union is reproduced below:



With respect to Figures 4-6, the cross hatching of the wear indicator can be solid tread material ("a stepped projection") or the cross hatching of the wear indicator can be space surrounded by tread material ("a stepped hole"). At page 3 lines 1-3 of the translation, Soviet Union states:

For this the remaining tread wear indicator is made in the form of a stepped pyramid. Moreover, the steps of the indicator pyramid can be formed by the side surfaces of the individual blocks or by recesses in the individual blocks of the tread.

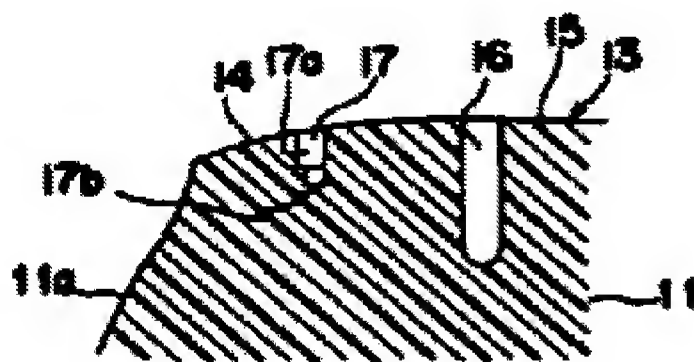
In particular, Soviet Union discloses FIRST EMBODIMENT (figures 1 and 2). In figure 1, the tread comprises wear indicator 1 and projections 2 ("tread elements"). Figure 2 shows the projections ("tread elements") having the form of blocks. With respect to this

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first embodiment, the abstract of Soviet Union teaches "... the wear indicator has the form of a stepped pyramid, which can be formed by shaping one of the tread projections ...". Soviet Union also discloses a SECOND EMBODIMENT (figure 3). In this alternative embodiment, Soviet Union shows a tread comprising two rows of "lugs" wherein the indicator is within one of the lugs. With respect to this second embodiment, the abstract of Soviet Union states "... the wear indicator ... can have the form of an opening in one of these projections". In the translation, Soviet Union teaches that the steps can be formed by recesses (page 3). Hence, Soviet Union teaches (1) a "projection" for use as an indicator having a stepped shape or (2) a "hole" for use as an indicator having a stepped shape. More importantly, Soviet Union teaches a stepped wear indicator wherein the steps have the same contour (figures 4, 5) or different contours (figure 6).

Japan 608, directed to a tire tread wear indicator for indicating when tire should be rotated, discloses a tire with a tread comprising a stepped hole 17 for indicating wear.

圖 6



Japan 608 discloses a tire tread having a stepped hole 17 with a tetragonal shape for indicating wear. When a first step of the hole disappears, a first rotation is carried out and when a second step of the hole disappears, a second rotation is carried out. See translation of Japan 608 and appellant's description of Japan 608 on lines 3-5 of page 6 of after final amendment filed 10-1-07.

Slingluff, directed to a tire tread wear indicator for indicating when tire should be rotated, discloses a tire having a wear indicator comprising a plurality of pattern parts such as holes. When the tread wears such that any particular pattern part is no longer visible, then it is time to rotate the tire to another wheel position. Slinghuff illustrates eight rows of holes, but teaches that other numbers of rows may be used. See Figures 1-4, col. 1 lines 56-67, and col. 4 lines 9-17. Providing the tread wear indicator as a hole in a tread element (Figures 1-2) is an alternative to providing the tread wear indicator as a projection in a groove (Figures 5-6).

As to claim 12, it would have been obvious to one of ordinary skill in the art to *shape* the steps of Japan 684's wear indicating hole such that one step (one perimeter edge) has a contour including a polygon formed by straight lines and the other step (other perimeter edge) has a different contour including a loop shape formed by a curved lines since Soviet Union shows facilitating visual identification of different steps of a wear indicator by providing one step with straight lines and another step with curved lines (see figure 6) as an alternative to providing all steps with straight lines (figure 4) or providing all steps with curved lines (figure 5). Japan 684 and Soviet Union

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are in the same field of endeavor of wear indicators for tires. In view of the similarity in structure (steps) and function (indication of wear) of Japan 684 and Soviet Union, one of ordinary skill in the art would have found it obvious to use *different shapes* for the steps of the wear indicating hole of Japan 684 - only the expected results of facilitation of indication of tire tread wear being obtained.

In claim 12, the description of "rotation timing indication hole" and "have depths separately representative of different degrees of wear of a tread surface until tire rotation timing" relate to intended use and fail to require hole structure not suggested by the above applied prior art to Japan 684 and Soviet Union. In any event: it would have been obvious to provide the steps of Japan 684's stepped wear indicating hole *with depths* for indicating timing for rotation of a tire since (1) Japan 608 teaches providing the steps of a stepped wear indicating hole with depths so that when a first step of the hole disappears, a first rotation is carried out and when a second step of the hole disappears, a second rotation is carried out and/or (2) Slingluff suggests using holes of different depths to indicate when the tire has worn to a level where it is due for rotation to another wheel position on a vehicle. Hence, the applied prior art to Japan 608 and/or Slingluff renders obvious using Japan 684's stepped hole (Figure 2f) as a "rotation timing indication hole".

With respect to "inscribed on or included in", the perimeter of the second step of Japan 684's Figure 2f hole was a width which is smaller than the width of the perimeter of the first step. Furthermore, the perimeter of the second step of Japan 684's Figure 2f contacts the perimeter of the first step, the length of the first and second steps thereby

being the same. Since the entire perimeter of the lower second step of Japan 684 is within the perimeter of the first step at the tread surface, the second step is "included in" the first step.

As to claim 15, Soviet Union teaches a rounded shape such as a circle for a step of a wear indicator.

As to claim 16, Soviet Union teaches using a "polygon shape" such as rhomboidal shape or square shape for a step of a wear indicator and a rounded shape such as a circle for a different step of the wear indicator.

As to claims 17 and 18, Soviet Union teaches using different shapes for different steps of a wear indicator (Figure 6).

As to claim 20, it would have been obvious to one of ordinary skill in the art to use six pairs of holes arranged at intervals in a circumferential direction of the tire in view of Slingluff's suggestion to locate groups of rotation timing indicating holes at uniform intervals around the circumference of the tire (col. 4 lines 8-17).

(10) Response to Argument

Appellants acknowledge that Figure 2f of Japan 684 shows a hole in a tread (page 7 of Brief filed 12-9-08). Examiner agrees and adds that Japan 684 teaches a **stepped wear indicator** for a tire tread wherein (1) the stepped wear indicator can have the form of a hole and (2) the contour of a second step is included in the contour of the first step at the tread surface. See Figure 2f of Japan 684.

Appellants argues that the length of Japan 684's hole (between end walls 1) remains the same, while the width of the hole becomes smaller such that the rectangular configuration of the hole is maintained (page 7 of Brief filed 12-9-08). Examiner acknowledges that the contour of the first and second steps of Japan 684's Figure 2f wear indicator is rectangular. However, the use of *different shapes* for edges of different steps of a wear indicator is not novel. Figure 6 of Soviet Union shows a **stepped wear indicator** having three steps wherein one step has curved edges whereas the other two steps have straight edges. The use of different shapes for the edges of the steps of Japan 684's tire tread wear indicator would have been obvious in light of Soviet Union's teaching to use different shapes for the edges of different steps of a tire tread wear indicator (Figure 6) as an alternative to using the same shape for the edges of different steps of a tire tread wear indicator (Figure 4).

Appellants comment that as the claimed tire wears, the fundamental shape of the hole changes (page 8 of Brief filed 12-9-08). In claim 1, the steps of the indication hole have depths separately representative of different degrees of wear of a tire tread. The claimed hole functions therefore as a wear indicator. **The concept of the fundamental shape of a wear indicator for a tire tread changing with wear is known as evidenced by Soviet Union.** In Figure 6, the shape of the stepped wear indicator changes from a circle to a square.

Appellants argue that there is no disclosure in Japan 684 of an indicator hole with a portion having straight lines and another portion having curved lines (page 8 of Brief filed 12-9-08). Examiner agrees that Japan 684 teaches a stepped wear indicator with

all of the steps having curved lines or straight lines. Also, the use of a stepped wear indicator with one step having straight lines and another step having curved lines (Figure 6) is disclosed by Soviet Union as being an alternative to a stepped wear indicator with all of the steps having curved lines (Figure 5) or straight lines (Figure 4).

Appellants comment that the progression of wear of the claimed tread is easily discerned (page 8 of Appeal Brief filed 12-9-08). The same is true with Japan 684 and Soviet Union's stepped tread wear indicators. The change of the wider rectangular contour to the narrower rectangular contour in the Figure 2f embodiment of Japan 684 provides an easily discernable visual indication of tread wear. The change of the circular contour to the polygon contour in the Figure 6 embodiment of Soviet Union provides an easily discernable visual indication of tread wear.

Appellants argue that the second step in Soviet Union is not inscribed on or included in the first step (page 9 of Brief filed 12-9-08). This argument is not persuasive. The second step (between the tread surface and the hole bottom) in Japan 684's wear indicator is included in the first step (at the tread surface) and appellants fail to argue otherwise.

Appellants argue that all of the projections in Soviet Union are in the form of stepped projections (pages 8-10 of Brief filed 12-9-08). This argument is not persuasive because Soviet Union's teachings as to the *shapes* for steps of a tire tread wear indicator are applicable to the *shapes* for the steps of Japan 684's tire tread wear indicator. As can be seen from consideration of both Japan 684 and Soviet Union, a step having curved lines can be used for either a hollow wear indicator or solid wear

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indicator and a step having straight lines can be used for either a hollow wear indicator or solid wear indicator. Thus, Japan 684 and Soviet Union teaches the same subject matter of a stepped tire tread wear indicator. As to *how to form the steps*, Japan 684 teaches using a hole. See Figure 2f of Japan 684. As to *suitable shapes for the edges of the steps*, Soviet Union teaches using different shapes such as a circle and a straight sided polygon. See figure 6 of Soviet Union.

Appellants argue that the tread wear indicators disclosed in Japan 684 and Soviet Union are fundamentally different in structure and function which would make the proposed modification of Japan 694 improbable (pages 10, 11 of Brief filed 12-9-08). Examiner disagrees. The indicator in Japan 684 and Soviet Union has the same structural characteristic of steps. The indicator in Japan 684 and Soviet Union has the same function of indicating tread wear. This similarity in structure and function makes the proposed modification of the shape of the steps of Japan 684's hole reasonable.

Appellants argue discernment of shape of the wear indicator in Soviet Union would be more difficult task than in the claimed invention (page 10 of Brief filed 12-9-09). This argument is not persuasive. No unexpected results over the applied prior art has been shown. The applied prior art has not been compared with either Japan 684 or Soviet Union.

Appellants argue that Figure 3 of Soviet Union illustrates a projection in a hole. This argument is not persuasive because (1) Japan 684 teaches a stepped tire tread wear indicator in the form of a stepped hole and (2) Soviet Union teaches using different shapes (e.g. circle and square) for different steps of a wear indicator.

With respect to appellants' analysis for Figure 3 of Soviet Union, examiner provides the following comments: First: Soviet Union teaches providing the stepped pyramid as a projection or a hole. See abstract and page 3 lines 1-3 of Soviet Union. Second: Page 3 of Soviet Union describes "... the steps of the indicator pyramid can be formed ...by recesses in the individual blocks of the tread" instead of --the steps of the indicator pyramid can be formed by a projection in a hole--. Third: The term "pyramid" is consistent both hollow and solid - a pyramid can be hollow. Fourth: One of ordinary skill in the art knows that a wear indicator can be in the form of a hole or the form of projection. Compare Japan 684 and Soviet Union. Also compare Figures 1-2 with Figures 5-6 of Slinghuff. Fifth: Figure 3 of Soviet Union illustrates a stepped recess in a lug (a type of block). The stepped recess is illustrated using a cutaway view of a portion of the lug. One of ordinary skill in the art would readily understand from Soviet Union that (1) when the lug tire tread of Figure 3 is new, a small diameter circular recess is visible and (2) as the tire tread wears, the diameter of the recess in the lug (block) of Figure 3 increases to a larger diameter recess and then to a largest diameter recess. Contrary to appellants' argument, Figure 3 of Soviet Union fails to illustrate a stepped projection in an opening in a tread. This construction proffered by appellants would result in a *thin rubber wall* between "the inner surface of the opening" and "the outer surface of the lug". Since a thin rubber wall in a lug tire tread would be easily torn and thereby highly undesirable, appellants' proffered construction of Figure 3 illustrating a stepped projection in an opening in a lug is considered to be unreasonable. The examiner's interpretation of Figure 3 of Soviet Union is supported by the written

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disclosure (e.g. page 3) of Soviet Union. Appellants' interpretation of Figure 3 of Soviet Union, on the other hand, is not supported by the written disclosure of Soviet Union.

Sixth and more important: Soviet Union teaches that a combination of different shapes (e.g. circle and square) can be used for a stepped wear indicator for a tire tread.

With respect to Japan 608 and Slingluff (optional references), appellants comment that examiner has relied principally on the disclosures in Japan 684 and Soviet Union and has not placed much reliance on the disclosures in Japan 608 and Slingluff for rejecting claim 12. Claim 12 describes the indication hole as being for "rotation timing". In other words, the depths of the steps correspond to the times at which the tire should be rotated. Examiner maintains that the description related to "rotation timing" fails to require structure not suggested by Japan 684 and Soviet Union. Since appellants fail to argue that claim 12 requires different depths / different use of the stepped hole than that disclosed by Japan 684, reliance on the optional references to Japan 608 and Slingluff (which clearly teach using an indicating hole for rotation timing), appears unnecessary.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Steven D. Maki
/Steven D. Maki/
Primary Examiner, Art Unit 1791
May 10, 2009

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